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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

FREJD, RUSSELL WARREN

ART UNIT	PAPER NUMBER
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2128

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11/02/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/541,983	Applicant(s) POTZE	
	Examiner Russell Frejd	Art Unit 2128	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 July 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>1.19.06</u> | 6) <input type="checkbox"/> Other: _____ |

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Examination of Application #10/541,983

1. Claims 1-10 of application 11/541,983, filed on 11-July-2005, are presented for examination.

Abstract Objections

2. The Abstract of the Disclosure is objected to because the submitted Abstract is a copy of the abstract from the front page of WIPO application WO 2004/063666. Correction is required.
See M.P.E.P. 608.01(b).

2.1 Applicant is reminded of the proper content of an Abstract of the Disclosure.

A patent abstract is a concise statement of the technical disclosure of the patent and should include that which is new in the art to which the invention pertains.

If the patent is of a basic nature, the entire technical disclosure may be new in the art, and the abstract should be directed to the entire disclosure.

If the patent is in the nature of an improvement in an old apparatus, process, product, or composition, the abstract should include the technical disclosure of the improvement.

In certain patents, particularly those for compounds and compositions, wherein the process for making and/or the use thereof are not obvious, the abstract should set forth a process for making and/or use thereof.

If the new technical disclosure involves modifications or alternatives, the abstract should mention by way of example the preferred modification or alternative.

The abstract should not refer to purported merits or speculative applications of the invention and should not compare the invention with the prior art.

Where applicable, the abstract should include the following: (1) if a machine or apparatus, its organization and operation; (2) if an article, its method of making; (3) if a chemical compound, its identity and use; (4) if a mixture, its ingredients; (5) if a process, the steps. Extensive mechanical and design details of apparatus should not be given.

2.2 Applicant is reminded of the proper language and format of an Abstract of the Disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 250 words. It is important that the abstract not exceed 250 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said", should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

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The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," *etc.*

Specification Objections

3. The disclosure is objected to because of the following informalities:

The phrase "the measure of the" [p. 3, lns. 1, 4, 11, 24, and 27] is difficult to understand, and requires clarification.

The continuing information on page 1 requires updating (the 371 information).

The specification does not include any section headings, other than for the drawings.

Correction is required.

The term "Figs.5A" [p. 4, ln. 15] is understood to mean "Figs. 5A".

The phrase "Fig. 7 shows" [p. 4, ln. 19] should be "Figs. 7A-7F show".

Claim Rejections under 35 U.S.C. § 101

4. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

4.1 Claims 1-10 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The invention claims reconstructing a surface of an object.

4.2 This claimed subject matter lacks a practical application of a judicial exception (law of nature, abstract idea, naturally occurring article/phenomenon) since it fails to: 1) physically transform or reduce an article to a different state or thing; or 2) having the **final result** (not the

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steps) achieve or produce a: useful (specific, substantial, AND credible utility), concrete (assured, substantially repeatable/non-unpredictable), **and** tangible (real world/non-abstract, enabling usefulness to be realized) result. The Courts have found that subject matter that is not a practical application or use of an idea, a law of nature or a natural phenomenon is not patentable. As the Supreme Court has made clear, "[a]n idea of itself is not patentable," *Rubber-Tip Pencil Co. v. Howard*, 20 U.S. (1 Wall.) 498, 507 (1874); taking several abstract ideas and manipulating them together adds nothing to the basic equation. *In re Warmerdam*, 31 USPQ2d 1754 (Fed. Cir. 1994).

4.3 Specifically, the claimed subject matter does not produce a tangible result because the claimed subject matter fails to produce a result that is limited to having real world value rather than a result that may be interpreted to be abstract in nature as, for example, a thought, a computation, or manipulated data. More specifically, the claimed subject matter provides for: the object being represented by a 2-dimensional grid of measurements, where for each grid point the measurements include corresponding information on a first slope of the surface in a first direction and a second slope of the surface in a different second direction; the method including selecting a 2-dimensional part of the grid and fitting a corresponding part of the surface to the measurements of all grid points in the selected part, where the fitting for each grid point of the selected part is based on both the corresponding first and second slope information. This produced result remains in the abstract and, thus, fails to achieve the required status of having real world value, because claims 1-10 are determined to be a mathematical algorithm, converting one set of numbers into another set of numbers, whereby the method does not

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manipulate appropriate subject matter, and thus cannot constitute a statutory process (MPEP Section 2106.02).

4.4 The Examiner also posits that system claims 7-10 of the present invention are computer executable software code, or a program per se, consisting of a machine-readable medium having software instructions that implement the method for reconstructing a surface of an object. For at least this reason, the software instructions of the present invention do not meet the criteria for a statutory process (MPEP Section 2106.01).

4.5 Furthermore, claims 7-10 are determined to not meet the criteria for a statutory process due to the description on page 12 of the specification, wherein the computer program product is described as encompassing a wireless distribution medium that encodes a data signal. In view of the guidelines for 101 subject matter, the wireless medium, having software for reconstructing a surface of an object, does not manipulate appropriate subject matter, and thus cannot constitute a statutory process under 35 U.S.C. § 101.

Claim Rejections under 35 U.S.C. § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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5.1 Claims 1, 2, and 4-9 are rejected under 35 U.S.C. 102(b) as being anticipated by the article authored by Yi et al., entitled *An Invariant Performance Measure for Surface Reconstruction Using the Volume Between Two Surfaces*.

5.2 Yi et al. disclose:

Claims 1 and 7: reconstructing a surface of an object; the object being represented by a 2-dimensional grid of measurements [Abstract], where for each grid point the measurements include corresponding information on a first slope of the surface in a first direction and a second slope of the surface in a different second direction [p. 605, col. 1, sec. IV: Volume and Area by Two-Triangles Approximation]; the method including selecting a 2-dimensional part of the grid and fitting a corresponding part of the surface to the measurements of all grid points in the selected part, where the fitting for each grid point of the selected part is based on both the corresponding first and second slope information [p. 605, col. 2, sec V: Volume Between Two Surfaces Where Intersection Occurs].

Claim 2: performing the fitting through a least-square minimization operation [Abstract; p. 603, sec. III "Volume and Area by Least-Squared-Error Plane Approximation"].

Claim 4: the selected part of the grid is substantially the entire grid [p. 605, sec. IV "Volume and Area by Two-Triangles Approximation" (see especially "two triangles in a consistent direction over an entire image")].

Claim 5: measuring for each point of the grid the first and second slope using deflectometry [p. 601, col. 2, par. 2 through p. 602, col. 1, par. 1].

Claim 6: a computer program product operative to cause a processor to perform the steps of the method as claimed in claim 1 [p. 601, col. 1, see 3D displays].

Claim 8: the system includes a measurement unit for measuring for each measurement point of a measurement grid the corresponding first and second slope information [p. 605, col. 1, sec. IV].

Claim 9: the measuring is performed along non-straight lines; the measurement grid being directly used for the reconstruction [p. 602, Fig. 2, the view of the reconstructed surface].

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Claim Objections

6. Claims 3 and 10 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response Guidelines

7. A shortened statutory period for response to this action is set to expire **3 (three) months and 0 (zero) days** from the date of this letter. Failure to respond within the period for response will cause the application to become abandoned (see MPEP 710.02, 710.02(b)).

7.1 Any response to the Examiner in regard to this non-final action should be

directed to: Russell Frejd, telephone number (571) 272-3779, Monday-Friday from 0530 to 1400 ET, **or** the examiner's supervisor, Kamini Shah, telephone number (571) 272-2279. Inquiries of a general nature or relating to the status of this application should be directed to the TC2100 Group Receptionist (571) 272-2100.

mailed to: Commissioner of Patents and Trademarks
P.O. Box 1450, Alexandria, VA 22313-1450

or faxed to: (571) 273-8300

Hand-delivered responses should be brought to the Customer Service Window, Randolph Building, 401 Dulany Street, Alexandria, VA, 22314.

Date: 29-September-2007

/Russell Frejd/
Primary Examiner AU 2128

RUSSELL FREJD
PRIMARY EXAMINER